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Seventh Floor  
Washington, DC 20007  
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July 19, 2016

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

Re: GreenGenStorage's Application for Preliminary Permit for Mokelumne Pumped Storage Project, FERC Project No. \_\_\_\_\_

Dear Secretary Bose:

Pursuant to 18 C.F.R. §§ 4.32 and 4.81 (2016) of the Federal Energy Regulatory Commission's ("Commission") regulations, enclosed for filing is GreenGenStorage LLC's ("GreenGenStorage") Application for Preliminary Permit for the Mokelumne Pumped Storage Project ("Application"). As explained in the Application, GreenGenStorage proposes to evaluate the potential development of a pumped storage generating facility at Pacific Gas and Electric Company's existing Mokelumne River Project No. 137. GreenGenStorage is dedicated to expanding California usage of clean, renewable energy and is submitting this Application in order to secure and maintain priority in the licensing process, while undertaking activities to determine the feasibility of the proposed project and support an application.

GreenGenStorage looks forward to working with the Commission while developing this important new source of clean and sustainable energy storage. If you have any questions regarding this submittal, please contact the undersigned, or Edward Cooper at 805-450-2867 or email him at [edward@greengenstorage.com](mailto:edward@greengenstorage.com).

Sincerely,

A handwritten signature in black ink that reads "Michael A. Swiger".

Michael A. Swiger  
Counsel to GreenGenStorage LLC

Enclosures

cc: Mr. Frank Blackett, Regional Engineer, San Francisco Regional Office

**BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**APPLICATION FOR PRELIMINARY PERMIT  
FOR THE  
MOKELUMNE PUMPED STORAGE PROJECT**

FERC Project No. \_\_\_\_\_

Prepared by

**GreenGenStorage, LLC**

July 19, 2016

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**INITIAL STATEMENT****BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION****Application for Preliminary Permit  
for the Mokelumne Pumped Storage Project**

1. GreenGenStorage, LLC ("GreenGenStorage" or "Applicant") a California based limited liability corporation, applies to the Federal Energy Regulatory Commission ("FERC" or "the Commission") for a preliminary permit for the Mokelumne Pumped Storage Project ("Project"), as described in the attached exhibits. This Application is made in order that the Applicant may secure and maintain priority of application for a license for the Project under Part I of the Federal Power Act while obtaining the data and performing the acts required to determine the feasibility of the project and to support an application for a license.
2. The location of the proposed project is:

State or territory:	California
Counties:	Amador County and Calaveras County
Township or nearby town:	Jackson
Streams:	North Fork Mokelumne River, Bear River, Cole Creek

3. The exact name, business address, and telephone number of the applicant are:

GreenGenStorage LLC  
PO Box 537  
Summerland, CA 93067  
Telephone: (805) 450-2867

The name, business address, and telephone number of the persons authorized to act as agent for the applicant and this application are:

Mr. Edward Cooper  
Managing Director and Project Manager  
GreenGenStorage LLC  
PO Box 537  
Summerland, CA 93067  
Telephone: (805) 450-2867  
Email: edward@greengenstorage.com

Michael A. Swiger  
Van Ness Feldman, LLP  
1050 Thomas Jefferson Street, NW  
Washington, DC 20007  
Telephone: (202) 298-1891  
Email: mas@vnf.com

4. Preference under Section 7(a) of the Federal Power Act

GreenGenStorage is limited liability corporation operating in California and is not claiming municipal preference. GreenGenStorage engages primarily in the businesses of operating and maintaining pumped-storage facilities.

5. Term of Permit: The proposed term of the requested permit is thirty-six (36) months.

6. Existing Dams or Other Project Facilities:

The proposed Project would make use of the waters within the watershed including Pacific Gas and Electric Company's ("PG&E") reservoirs licensed under PG&E's Mokelumne River Project (FERC Project No. 137), including Salt Springs, Lower Bear River, and Upper Bear River Reservoirs owned by PG&E.

**ADDITIONAL INFORMATION REQUIRED BY 18 C.F.R. § 4.32(a)**

1. Identification of persons, associations, domestic corporations, municipalities, or state that has or intends to obtain and will maintain any proprietary right necessary to construct, operate, or maintain the project:

GreenGenStorage, LLC  
PO Box 537  
Summerland, CA 93067  
Telephone: (805) 450-2867

2. Identify (names and mailing addresses):

- i. Every county in which any part of the project, and any Federal facilities that would be used by the project, would be located.

Amador County, California  
Board of Supervisors  
810 Court Street  
Jackson, CA 95642-2132  
Telephone: (209) 223-6490

Calaveras County, California Board of Supervisors  
891 Mountain Ranch Road  
San Andreas, CA 95249-9713  
Telephone: (209) 754-6370

- ii. Every city, town or similar local political subdivision:

- (A) In which any part of the project, and any Federal facilities that would be used by the project, would be located:

*None.*

- (B) That has a population of 5,000 or more people and is located within 15 miles of the project dam:

*None.*

iii. Every irrigation district, drainage district, or similar special purpose political subdivision:

(A) In which any part of the project, and any Federal facilities that would be used by the project, would be located.

Upper Mokelumne River Watershed Authority  
PO Box 228  
Stockton, CA 94201-0228  
Telephone: (209) 946-8080

Jackson Valley Irrigation District  
6755 Lake Amador Drive  
Ione, CA 95640-9435  
Telephone: (209) 274-2037

Amador Resource Conservation District  
12200-B Airport Road  
Jackson, CA 95642  
Telephone: (209) 223-6543

Amador Water Agency  
12800 Ridge Road  
Sutter Creek, CA 95685-9630  
Telephone: (209) 223-3018

Calaveras County Water District  
120 Toma Court  
San Andreas, CA 95249  
Telephone: (209) 754-3543

(B) That owns, operates, maintains, or uses any project facilities or any Federal facilities that would be used by the project:

*None.*

- iv. Every other political subdivision in the general area of the project that there is reason to believe would likely be interested in, or affected by, the application; and interest:

East Bay Municipal Utility District  
PO Box 24055 MS 42  
Oakland, CA 94623-1055  
375 11th Street  
Oakland, CA 94607  
Telephone: (866) 403-2683

Mokelumne River Water and Power Authority  
1810 E. Hazelton Avenue  
PO Box 1810  
Stockton, CA 95201  
Telephone: (209) 468-3089

North San Joaquin Water Conservation District  
PO Box E  
Victor, CA 95253  
Telephone: (209) 368-2101

Woodbridge Irrigation District  
PO Box 580  
Woodbridge, CA 95258  
Telephone: (209) 625-8438

- v. All Indian tribes that may be affected by the project:

Calaveras Band of Miwok Indians  
PO Box 1015  
West Point, CA 95255-1015  
Telephone: (209) 293-4135

Jackson Band of Miwok Indians  
PO Box 1090  
Jackson, CA 95642-1090  
Telephone: (209) 223-8370

Siena Native Americans  
9820 Five Mile Drive  
Ione, CA 95640-9726  
Telephone: (209) 274-2357

Washoe Tribe of Nevada and California  
919 Hwy 395 South  
Gardnerville, NV 89410  
Telephone: (775) 265-4171

Ione Band of Miwok Indians  
PO Box 699  
Plymouth, CA 95669  
Telephone: (209) 245-5800

Buena Vista Rancheria of Me-Wuk Indians  
1418 20th Street #200  
Sacramento, CA 95811  
Telephone: (916) 491-0011

Chicken Ranch Band of Me-Wuk Indians  
Chicken Ranch Rancheria  
PO Box 1159  
Jamestown, CA 95327-1159  
Telephone: (209) 984-9066

Sien-a Native American Council  
1580 Longgate Road  
Plymouth, CA 95669-9725

Central Sien Me-Wuk Cultural &  
Historic Preservation Committee  
PO Box 389  
Tuolumne, CA 95379-1389

Native American Heritage Commission  
915 Capitol Mall  
Room 364  
Sacramento, CA 95814-4801  
Telephone: (916) 653-6251

## VERIFICATION STATEMENT

This Application for a Preliminary Permit for the Proposed Mokelumne Pumped Storage Project is executed in the State of California, County of Santa Barbara. Edward Cooper, Managing Director, GreenGenStorage, P.O. Box 537, Summerland, CA 93067, being duly sworn, deposes, and says that the contents of this Application for a Preliminary Permit are true to the best of his knowledge or belief.

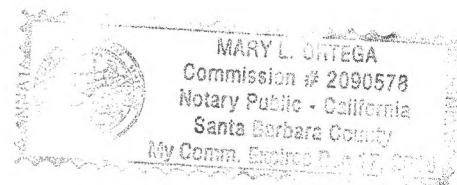
The undersigned Applicant has signed the Application on this 14th day of July, 2016.



Edward Cooper, Managing Director,  
GreenGenStorage LLC

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document

Subscribed and sworn before me, a Notary Public of the State of California, County of Santa Barbara, this day of July 14, 2016.

  
NOTARY REPUBLIC

## **EXHIBIT 1 – DESCRIPTION OF THE PROPOSED PROJECT**

### **1. GENERAL**

The proposed Mokelumne Pumped Storage Project would be located approximately 33 miles east of Jackson, California in Amador County and Calaveras County, California (Exhibit 4). The project concept envisions the construction of a pumped storage generating facility using the existing Salt Springs Reservoir as a lower pool. Salt Springs Reservoir is part of PG&E's currently licensed Mokelumne River Project (FERC Project No. 137). The Salt Spring Reservoir has an active capacity of 141,817 acre-feet of water and is currently used for energy production purposes. An upper reservoir using the existing Upper or Lower Bear River Reservoirs, along with a water conveyance tunnel, powerhouse, transmission line, and other appurtenant facilities would complete the Project.

Based on preliminary engineering studies, there are two alternative upper reservoir configurations using Salt Springs Reservoir as the lower reservoir.

- The existing Lower Bear River Reservoir; or
- The existing Upper Bear River Reservoir.

In addition to the reservoir alternatives being evaluated, the project would also consist of:

- An underground powerhouse containing the pump-turbines and motor-generators;
- Underground water way(s) connecting the upper reservoir, pump turbines, and the lower reservoir; and
- An electrical interconnection with the existing high-voltage regional transmission system.

The generating capacity and energy storage, if pursued into the development phase, would need to be optimized to best suit the physical site and electrical system conditions. At the present time, several different options are possible regarding size of generating units ranging from a 1-unit, 380-MW facility to a 3-unit, 1140-MW facility (3 units x 380-MW each unit) with existing reservoirs currently sufficient to provide approximately eight to ten hours of continuous output.

### **2. RESERVOIRS**

The upper reservoir configuration and location is to be the one best suited to maximize available head and minimize tunnel length within the terrain and environmental constraints of the terrain north of the existing Salt Springs Reservoir. The reservoir sites identified within this application are the result of conceptual engineering completed by GreenGenStorage and its consultants. During the term of the preliminary permit, GreenGenStorage will investigate these alternatives further and select the most preferable configuration based on energy, economic, and environmental considerations.

The project concept is based on using the existing Salt Springs Reservoir as the lower reservoir for the pumped storage operation, with the location and configuration of the upper reservoir optimized as part of the studies envisioned during the term of the permit.

#### A. Upper Reservoir Configurations

The Lower Bear River Reservoir has an area of approximately 746 acres and storage capacity of 49,079 acre-feet. The existing Lower Bear River dam is a concrete faced, rockfill structure about 253 feet high and 979 feet long. The current normal maximum pool elevation is 5,822 feet. At full pool the existing reservoir backs up to the downstream toe of the Upper Bear River Dam. The existing reservoir will be able to accommodate a pumped storage operation as constructed. An approximate 16,000-foot long power tunnel would connect Lower Bear River Reservoir with Salt Springs Reservoir (elevation 3,959 feet). The power tunnel would include an intake structure, penstock, and tailrace features connecting through an underground powerhouse within a mile of Salt Springs Reservoir.

The Upper Bear River Reservoir has a surface area of approximately 320 acres and a useable storage capacity of 6,756 acre-feet. The existing Upper Bear River Dam is also a concrete faced, rockfill structure about 149-feet high and 865-feet long. This dam is located on a bedrock knoll that naturally separates the two Bear River Reservoir areas. The current normal maximum pool elevation is 5,876 feet. The reservoir will be able to accommodate a pumped storage operation. An approximate 20,000-foot long power tunnel would connect Upper Bear River Reservoir with Salt Springs Reservoir (elevation 3,959 feet). The power tunnel would include intake structure, penstock, and tailrace features connecting through an underground powerhouse within a mile of Salt Springs Reservoir.

Both Bear River reservoirs are a water supply source for Amador and Calaveras Counties, Jackson Valley Irrigation District, Amador Water Agency, North San Joaquin Water Conservation District, Woodbridge Irrigation District, and other private appropriators.

The planned studies will include investigation of raising the height of the Lower Bear River Reservoir and a determination of generation potential as presently constructed versus generation potential of a larger reservoir. In addition, subsurface investigations may be required to establish the technical feasibility of the concepts described above.

#### B. Lower Reservoir

Either of the upper reservoir configurations would make use of the existing Salt Springs Reservoir. Salt Springs Reservoir was originally constructed in 1931 and is a part of the currently licensed Mokelumne River Project (FERC Project No. 137). Salt Springs Dam is a concrete faced and sluiced rockfill dam about 332-feet high and 1,257-feet long. The existing Salt Springs Powerhouse is located about 650 feet downstream of Salt Springs Dam and contains two generating units of 44 MW total generating capacity. Salt Springs

Reservoir has a surface area of approximately 960 acres and a maximum active storage capacity of 141,817 acre-feet. At full pool, the normal maximum water surface elevation is 3,959 feet.

### 3. TRANSMISSION LINES

The location, number of circuits, voltage, and configuration of the project's interconnection with the regional electric utility network would need to be established as part of the studies to be carried out during the term of the permit. However, it is anticipated that the project would probably interconnect at the existing PG&E's Salt Springs Powerhouse switchyard substation located uphill of the Salt Springs Powerhouse, just below Salt Springs dam. If the Salt Springs Powerhouse switchyard and substation is a feasible interconnection point, the project transmission line length will be less than one mile (approximately 3,000 feet).

The interconnection voltage may be 230 or 500 kV, depending upon the results of studies to be carried out. The project transmission line may be one or two circuits, depending upon the results of studies to be carried out.

### 4. PROJECT CAPACITY

Existing reservoirs are currently sufficient to provide approximately eight to 10 hours of continuous output.

The project is proposed to store excess renewable energy, helping to integrate renewables onto the grid, and to supply firm peaking capacity with primary load following capability. Based on preliminary analysis, the planned installed capacities could range from 380 to 1140 MW, although this may change as studies proceed. GreenGenStorage also plans to conduct transmission system studies and power market investigations to help further refine the range of suitable generation capabilities.

Assuming a 15% plant factor, typical for pumped storage projects, the average annual electricity production would be between 523 and 742 GWh. Assuming a cycle efficiency of 78%, typical for pumped storage, the pumping energy requirement would be between 670 and 951 GWh.

On a preliminary basis, the maximum gross head may be between 1,850 and 2,700 feet depending on reservoir location. At the present time, the project concept envisions procurement of one to three new pump-turbine generator-motor sets, each with a nominal rating of 380 MW.

### 5. FEDERAL LANDS

The project study boundary, as shown on Exhibit 4, encompasses both public and private lands. The Federal lands within the project study area are part of the Eldorado National Forest. Each of the study alternatives involves potential use of public lands within the

National Forest System. Adjacent to the Salt Springs Reservoir and just east of the various upper reservoir sites and a potential lower powerhouse location, is the Mokelumne Wilderness Area, a federally designated 105,165-acre area initially established with the passage of the Wilderness Act of 1964 (see Exhibit 4). Additionally, the 17-mile reach of the North Fork Mokelumne River from about one-half mile downstream of Salt Springs Dam to one mile west of Bear River, just east of PG&E's Tiger Creek Powerhouse, has been found by the Eldorado National Forest to be eligible for inclusion in the nation's Wild and Scenic River system.

## 6. ADDITIONAL INFORMATION

GreenGenStorage is aware that PG&E originally filed an application for a preliminary permit for a Mokelumne pumped-storage project on or around May 7, 2008; it was granted on September 19, 2008. *Pac. Gas & Elec. Co.*, 124 FERC ¶ 62,213 (2008). FERC then granted PG&E a successive permit for the project on December 2, 2011. *Pac. Gas & Elec. Co.*, 137 FERC ¶ 62,204 (2011). On or around October 30, 2014, PG&E then filed for a second successive permit, however, FERC denied this request on December 10, 2014. *Pac. Gas & Elec. Co.*, 149 FERC ¶ 62,184 (2014).

GreenGenStorage acknowledges the comments submitted by intervenors in the prior PG&E docket (P-13221), especially those submitted by East Bay Municipal Utility District (“EBMUD”) and the U.S. Fish & Wildlife Service. GreenGenStorage commits to complying with the “Lodi Decree,” fisheries management requirements, and energy production requirements of both EBMUD’s and PG&E’s operations. To be clear, GreenGenStorage intends to construct, operate, and maintain the project in a manner that conflicts neither with EDMUD’s nor PG&E’s current operations.

GreenGenStorage’s preliminary engineering shows that the Mokelumne pumped-storage project’s intake, penstock, underground powerhouse and tailrace can be constructed so as to not interfere with PG&E’s Salt Springs hydro facilities. That is, GreenGenStorage will be able to keep enough distance between its facilities and PG&E’s so that there will be no interference; and GreenGenStorage will manage its pumped-storage operations in a manner that will not conflict with PG&E’s hydro operations.

GreenGenStorage commits to working with all intervenors to address intervenors’ issues and concerns.

No further definitive information regarding this project is available at the time of preparing this application.

Form FERC-587  
 OMB No. 1902-0145  
 (Expires 06/30/2009)

**LAND DESCRIPTION**  
**Public Land States**  
**(Rectangular Survey System Lands)**

1. STATE: **California**2. FERC PROJECT NO. *Not applicable*3. TOWNSHIP: **8N**4. RANGE: **16E**5. MERIDIAN: **Mount Diablo**

6. Check one:

Check one:

License  
 Preliminary Permit

Pending  
 Issued

If preliminary permit is issued, give expiration date: *Not applicable*

## 5. EXHIBIT SHEET NUMBERS OR LETTERS

Section 6	5	4	3	2	1
7	4	4	4		
4	4	4	4		
18	17	16	15	14	13
4	4	4	4		
19	20	21	22	23	24
4	4	4	4		
30	29	28	27	26	25
		4	4		
31	32	33	34	35	36
		4			

6. Contact's name: **EDWARD COOPER**  
 Telephone No.: **805-450-2867**  
 Date submitted: **July 13, 2016**

This information is necessary for the Federal Energy Regulatory Commission to discharge its responsibilities under Section 24 of the Federal Power Act.

## **EXHIBIT 2 – DESCRIPTION OF THE PROPOSED STUDIES**

### **1. DESCRIPTION OF STUDIES**

Applicant proposes to conduct a detailed feasibility study of the technical features of the Project and confirm the Project's economic viability. The feasibility study will be designed to evaluate various project concepts, layouts, and equipment arrangements to optimize the Project configuration. The feasibility study will include:

- Evaluation of alternative configurations
- Formulation of project water supply plan
- Selection of a preferred alternative
- Topographical surveying
- Geological investigations
- Environmental and cultural study scoping and consultation, environmental and cultural surveys, impact identification and assessment, and formulation of mitigation measures
- Engineering studies to optimize the project physical configuration
- Determination of size and specific type of equipment
- Power marketing and establishing preliminary power sales and power supply expectations
- Transmission interconnection planning
- Legal and water rights matters
- Cost estimating, economic feasibility and financial planning investigations

Based on the results and findings of the initial stages of the feasibility study, Applicant will prepare a Notice of Intent and Pre-Application Document as detailed in 18 C.F.R. §§ 5.5 and 5.6.

### **2. SCHEDULE OF ACTIVITIES**

The schedule of activities will be completed by the applicant during the permit period as shown in the table below:

<b>Schedule</b>	<b>Activity</b>
Beginning in Month 1 to the end of Month 2	Engineering, Screening and evaluation of alternative configurations
Beginning in Month 10 to the end of Month 14	Selection of preferred alternative configuration
Beginning in Month 1 to the end of Month 13	Engineering and Economic Studies
Beginning in Month 1 to the end of Month 20	Environmental and Cultural Studies
Beginning in Month 1 to the end of Month 10	Initial Scoping and Consultation

Schedule	Activity
Beginning in Month 1 to the end of Month 20	Surveys and Studies
Beginning in Month 9 to the end of Month 24	Preliminary Licensing Proposal, Consultation, and Documentation
Beginning in Month 10 to the end of Month 20	Engineering Studies to Optimize the Project Physical Configuration
Beginning in Month 1 to the end of Month 14	Transmission Interconnection Planning
Beginning in Month 1 to the end of Month 14	Cost estimating, economic feasibility & financial planning Investigations
Beginning in Month 1 to the end of Month 20	Legal and Water Rights Matters
Beginning in Month 24 to the end of Month 36	Preparation, review and filing of the FERC License Application

The actual work may deviate from this planned schedule, depending upon circumstances which may develop as the work proceeds.

### 3. NEED FOR NEW ROADS

There are no access roads anticipated for the studies. All areas within the proposed project boundary are accessible over existing U.S. Forest Service roads and terrain using four-wheel drive vehicles.

**EXHIBIT 3 – STATEMENT OF COSTS AND FINANCING**

The estimated costs of carrying out or preparing studies, investigations, tests surveys maps plans or specifications identified in Exhibit 2:

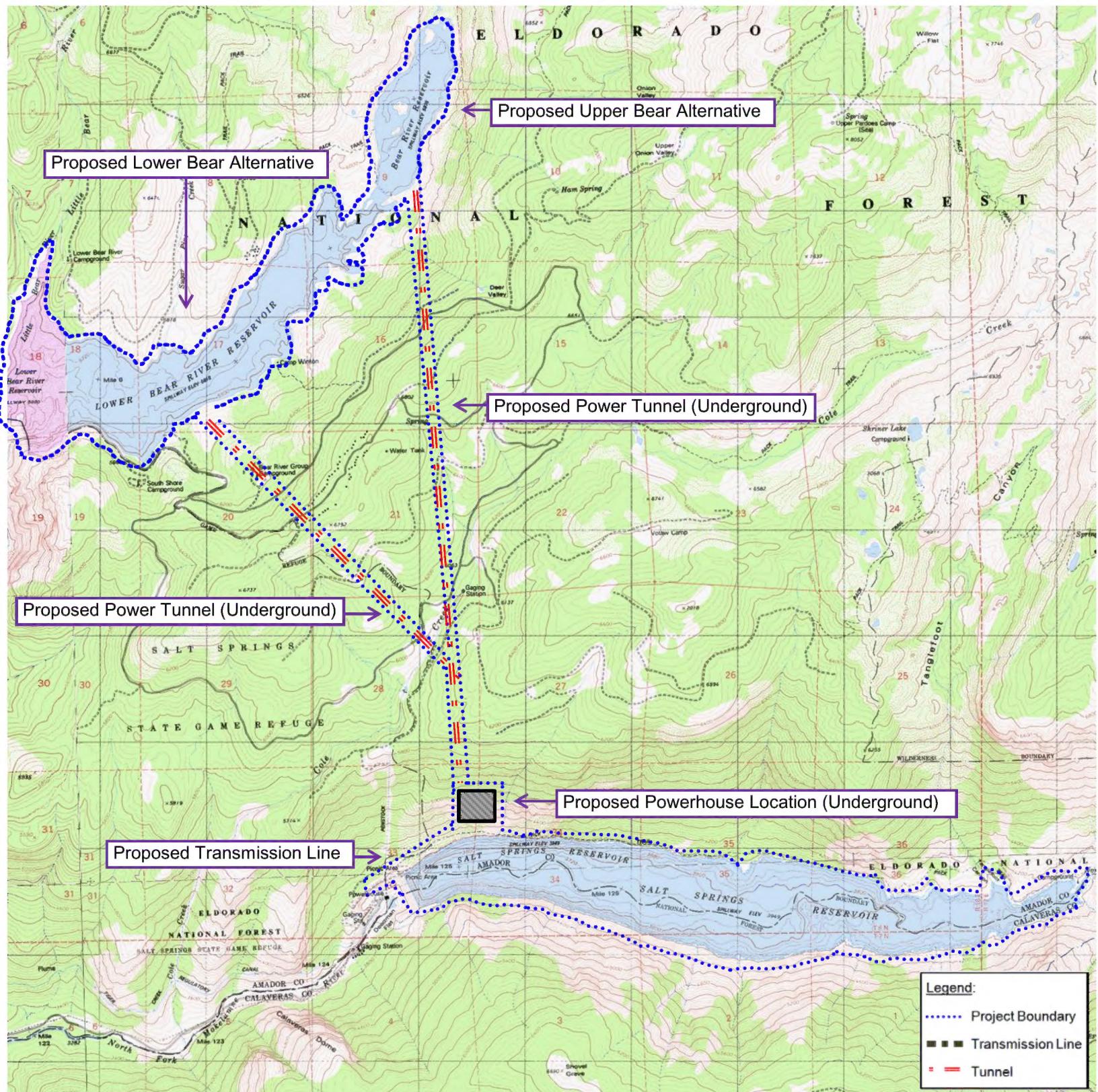
\$3-5 Million.

The expected sources of financing:

The Applicant has a portion of necessary funds and shall raise the balance through investors.

Proposed market for the energy storage/power:

The proposed market for the energy stored is through electric markets in California. Power purchasing entities and other potential off-takers will be further identified during the term of the preliminary permit.

**EXHIBIT 4 – MOKELUMNE PUMPED STORAGE PROJECT MAP****The Mokelumne River Pumped Storage Study Area Project Boundary**

Document Content(s)

GreenGenStorage Preliminary Permit Application FINAL.PDF .....1